

Docket #: Kellog.N-01

APPLICATION  
Of  
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For  
UNITED STATES LETTERS PATENT  
On  
UNIVERSAL SWING PRACTICE MAT AND METHOD OF USE

Sheets of Drawings: one (1)

TITLE: Universal Swing Practice Mat and Method of Use

## **BACKGROUND OF THE INVENTION**

### 5 INCORPORATION BY REFERENCE:

Applicant(s) hereby incorporate herein by reference, any and all U. S. patents, U.S. patent applications, and other documents and printed matter cited or referred to in this application.

### 10 FIELD OF THE INVENTION:

This invention relates generally to golf practice apparatus and more particularly to a visual training device using a light path to correct ones swing.

### 15 DESCRIPTION OF RELATED ART:

The following art defines the present state of this field:

20 Hannaford, U.S. 2,080,608 describes a golf swing practice device comprising a stick abbreviated relative to the usual length of a golf club shaft and weighted to have its center of gravity closely adjacent one end of the same, a double convex lens at said end, and electric light filament within said stick and so shaped and spaced from said lens that the image of said filament will be clearly projected onto the playing surface in the form of an elongated bar as the stick is swung there over, and means to energize said filament.

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Hernberg, U.S. 4,971,328 describes a golf swing training device comprising of a grip, a foreshortened shaft and a hollow head. The head contains a battery activated by a switch also located within the head, to illuminate a lamp, also within the head. The lamp emits a beam of light downward to the ground and forward of the club head. The light beam permits the

golfer to trace the arc of light corresponding to the golfer's swing to impart a mental image to the golfer of the precise club head path. The device also comprises a linear guide strip, which is placed on the ground in front of the golfer to establish the desired club head path. The golfer preferably follows the path of the light beam during a swing and compares the light path to the guide strip.

Daechsel, U.S. 5,161,802 describes a golf practice device comprising a golf club handle, and a shaft cut shorter than normal, with a unique head weighted to equal the swing of a regular club. The head contains a battery for a light, which is centrally mounted with lens and iris to produce a focused, rectangular spot of light, parallel to the shaft centerline. The device also has a combination level-and-centrifugal switch that turns on the light spot when the shaft is level at the start of the down swing, and also as the head travels through the bottom of the swing. The rectangular light beam shows the path of the swing through a target ball, allowing the user to check the accuracy of the swing as well as the squareness of the club head to a target line. The target comprises a golf ball with two electronic receivers on either side in a straight line. The visual light path shows the direction of the swing, and the sound from the electronic receiver indicates to the golfer when a precise swing has been achieved. As repeat accuracy improves with practice, the light beam can be narrowed by adjusting the iris for still greater accuracy.

Seibel et al., U.S. 5,759,110 describes a swing-training device including a housing which contains a light source, a power source and a driving circuit for generating a beam, such as a laser beam. Suitable optics, such as a collimator lens and a beam splitter (such as a half-mirror or a prism) are placed in the housing in order to split a highly defined beam so that a first beam is radiated along the longitudinal axis of the golf club shaft and a second beam is radiated at roughly a 90-degree angle with respect to the first beam. A gravity switch in the swing training device provides that the beams are only radiated during the back swing and follow through of a golf club, thus simplifying operation, saving power and reducing the likelihood of inadvertent radiation of the laser beam into the face of the golfer or bystanders.

The invention may also include a mat, which has indicia for properly aligning lighted dots generated on the mat by the laser beams in order that the golfer may develop a proper swing form. The housing has a nesting portion, which is received within an upper open end of a golf club shaft. The housing is removably secured to the golf club shaft by a collar and set-screw arrangement. The cap on the housing may be rotatable to provide for radial adjustment of the second beam, to suit the needs of the golfer.

Hamilton, U.S. 5,924,934 describes a practice golf club that is short for carrying in luggage, but is weighted to a standard D3 swing weight. It has a shaft with first and second ends, with a first grip on the first end, a second grip on the second end, and a head projecting transversely from the second end for visual alignment of the club. It has a laser beam projecting from the second end of the shaft along the axis of the shaft. The golfer grips the first end of the shaft and swings the practice club, causing the laser to trace a line on the floor that provides feedback about the lower part of the swing. The golfer grips the second end of the shaft and swings the practice club, causing the laser to trace a line on the floor that provides feedback about the upper part of the swing. The golfer places the club horizontally across the thighs and observes the laser dot near a target to square the address stance.

Laffer et al., U.S. 5,954,592 describes a golf swing training system including a light source such as a laser light that generates a light beam from the grip end of a golf club and a mat having disposed thereon graphics depicting a preferred light beam path. Upon swinging the golf club such that the light beam projects upon the mat following the light beam path golfers are taught how to swing the club along a preferred swing plane.

Heckaman, U.S. 5,993,333 describes a swing trainer device including a laser beam mechanism having a laser beam light source and batteries for emitting a laser beam, and further includes a laser beam attachment member which is essentially a flexible sleeve having an open first end which is removably engaged about the end of either the handle of a golf club or the barrel of a bat, and further having an open second end which is securely

engaged about the end of the back portion of the laser beam mechanism. A laser beam is directed away from and in the same plane as the handle of the golf club or the barrel of the bat. This swing trainer device is swung in a single plane to help the user maintain a consistent swing each and every time through muscle memorization.

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Shearer et al., U.S. 6,386,988 describes a golf swing training and exercise system for improving the golf swing of a golfer. The system includes a mat with an optically reflective surface, an elongated golf device having three sections and two lasers. Each laser attaches to one end of the golf device and projects a laser beam onto a mat.

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Schaum, U.S. 6,482,099 describes a golf-training device, which clamps onto the shaft of a standard golf club. The device has a holding block, which holds a laser pointing in a downward direction. A hinged mirror at the light-emitting end of the laser causes the laser light to be reflected at roughly a ninety-degree angle and thereby run parallel to the ground.

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An alignment strip and separate target helps the user calibrate the training device so that the laser beam is perpendicular to the flat head striking area of the golf club. The alignment strip can then be removed allowing the user to move the target to any reasonable distance. In this way a golfer can learn the proper alignment of club head to hole thereby improving his or her ability to accurately putt a golf ball towards and into the hole. The hinged mirror on the training device of the present invention can also be swung down so that the laser light is pointing straight down. In this orientation a user can swing a golf club in a practice room and observe the swing path of the club as the laser light forms a line as it strikes the floor, wall and ceiling. The training device of the present invention is easily attached and removed and is compact enough to be carried in ones pocket.

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Carpenter, U.S. 6,592,376 describes a golf training aid and a method of using the golf training aid. The face of the golf training aid is mirrored and permanently etched with several reference markings illustrating proper ball position, proper setup position, and proper club and body position at several points during the swing. The aid is marked for use with

woods, irons, and the putter. In one embodiment of the invention, the reference markings include several lines and textual prompts. In another embodiment of the invention, the textual prompts and some of the lines are replaced by icons. The back of the golf training aid is flat, allowing it to sit flush on a practice surface, thus allowing the golfer to practice a golf swing with head down and eyes on the ball while simultaneously viewing his own image juxtaposed with markings for a proper swing. The aid is used by placing it on the practice surface along the target line and optionally securing it in position. The golfer then takes up proper setup position based on the body position reference markings on the face of the aid and swings based on the club position reference markings on the face of the aid. If desired, the golfer can have the face of the aid marked, either temporarily or permanently, with individualized markings for body position and club position.

Shearer et al., U.S. 2002/0123384 describes a golf swing training and exercise system for improving the golf swing of a golfer. The system includes a mat with an optically reflective surface, an elongated golf device having three sections and two lasers. Each laser attaches to one end of the golf device and projects a laser beam onto a mat.

Our prior art search with abstracts described above teaches a golf game improver, a golf swing trainer, a golf practice device, a swing training device, a golf swing practice club with laser pointer, a golf swing training system, a swing training method with game ball hitting implement, a golf swing training and exercise device, a device and method for golf training, and a golf swing training and exercise device, but does not teach a training mat with light path visual aids of the type and use of the present invention. The present invention fulfills these needs and provides further related advantages as described in the following summary.

### **SUMMARY OF THE INVENTION**

The present invention teaches certain benefits in construction and use which give rise to the objectives described below.

A mat is configured to be placed on a ground surface so as to have an upwardly-facing surface and provides multiple foot position demarcations formed on the upwardly-facing surface so as to represent the user's stance upon the mat. Multiple ball position  
5 demarcations formed on the upwardly-facing surface substantially opposite of the foot position demarcations represent the location of a ball relative to the user swinging a golf club and standing upon the mat at the location of the foot position demarcations. A swing zone demarcation formed on the upwardly-facing surface is offset from the foot position demarcations and the ball position demarcations so as to represent an optimal path of light  
10 originating from a light source when the club is swung by the user

A primary objective of the present invention is to provide an apparatus and method of use of such apparatus that provides advantages not taught by the prior art.

15 Another objective is to provide such an invention capable of improving a golf swing.

A further objective is to provide such an invention capable of maintaining spine angle in a golf swing.

20 A still further objective is to provide such an invention capable of avoiding cupped cup wrist positions in a golf swing.

Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings,  
25 which illustrate, by way of example, the principles of the invention.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

The accompanying drawing illustrates the present invention. In such drawing:

Figure 1 is a perspective view of the preferred embodiment of the invention.

### **DETAILED DESCRIPTION OF THE INVENTION**

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The above described drawing figure illustrates the invention in at least one of its preferred embodiments, which is further defined in detail in the following description. Those having ordinary skill in the art may be able to make alterations and modifications in the present invention without departing from its spirit and scope. Therefore, it must be understood that  
10 the illustrated embodiments have been set forth only for the purposes of example and that they should not be taken as limiting the invention as defined in the following.

The present invention is a universal swing practice mat 10 apparatus for use by a golfer swinging a golf club (not shown) having a light source attached to it. The mat is configured  
15 to be placed on a flat ground surface; the mat 10 providing an upwardly-facing surface 20. Multiple foot position demarcations 30 are formed on the upwardly-facing surface 20 so as to represent the preferred position of a user's stance upon the mat 10. Multiple ball position demarcations 40 are also formed on the upwardly-facing surface 20 substantially opposite the foot position demarcations 30 so as to represent the location of a golf ball (not shown)  
20 relative to the user swinging the club and standing upon the mat 10 at the location of the foot position demarcations 30. At least one swing zone demarcation 50 is formed on the upwardly-facing surface 20 offset from the foot position demarcations 30 and the ball position demarcations 40 so as to represent an optimal path of light originating from the light source when the club is swung by the user. In this manner the apparatus is configured to  
25 accommodate users of varying sizes and stances and clubs of varying lengths and to provide to such users visual feedback of the club position at defined swing positions, enabling such users to assess and improve swing mechanics.



Preferably, the swing zone demarcation 50 terminates at a first end 52 substantially adjacent to the ball position demarcations 40 and terminates at a second end 54 substantially adjacent to the foot position demarcations 30.

5 Preferably, the swing zone demarcation 50 includes a substantially linear full-swing demarcation 55 originating at the first end 52 and extending away from and substantially perpendicular to the ball position demarcations 40, the full-swing demarcation 55 being configured to enable the optimal path of light to track within the full-swing demarcation 55 at a top position of a mechanically sound swing of the club by the user, the top position  
10 being defined by the location of the club during the swing substantially over the head of the user such that the club is substantially parallel to the ground surface. A substantially linear mid-swing demarcation 57 originating at the second end 54 and extending away from the foot position demarcations 30 substantially parallel with the full-swing demarcation 55, the mid-swing demarcation 57 being configured to enable the optimal path of light to track  
15 within the mid-swing demarcation at a midway position of the swing, the midway position being defined by the location of the club during the swing substantially at the waist-height of the user such that the club is substantially parallel to the ground surface.

a substantially arcuate high-swing demarcation 59 originating at the first end 52 along with the full-swing demarcation 55 and extending away from the ball position demarcations 40  
20 along a curve so as to intersect the mid-swing demarcation 54, the high-swing demarcation being configured to enable the optimal path of light to track within the high-swing demarcation 59 as the club is shifted between the midway position and the top position of the swing.

25 Preferably, the swing zone demarcation 50 further comprises a low-swing demarcation 58 originating substantially adjacent to the foot position demarcations 30 and extending away from the foot position demarcations 30 at an angle relative to both the full-swing demarcation 50 and the mid-swing demarcation 57 so as to intersect the high-swing demarcation 59, the low-swing demarcation 58 being configured to enable the optimal path

of light to track within the low-swing demarcation 58 as the club is shifted between a setup position and a midway position of the swing.

5 Preferably, the swing zone demarcation 50 further comprises a setup demarcation 56 extending between the foot position demarcations 30 and the ball position demarcations 40 so as to be substantially collinear with the ball position demarcations 40, the setup demarcation 56 being configured to enable the optimal path of light to track within the setup demarcation 56 at a setup position of the swing, the setup position being defined by the location of a distal end of the club adjacent to the ball position demarcations 40.

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Preferably, the foot position demarcations 30 comprise a left foot demarcation 32 and a right foot demarcation 34 wherein the right foot demarcation 34 is configured with multiple substantially parallel outside edge lines 36, whereby the user positions the left foot within the left foot demarcation 32 and the right foot within the right foot demarcation 34 such that  
15 the outside edge of the right foot is positioned against a select one of the outside edge lines 36 so as to have a comfortable stance upon the mat 10 with the feet substantially shoulder-width apart.

Preferably, the ball position demarcations 40 are arranged substantially linearly so as to  
20 define a swing axis extending through the ball position demarcations and passing between the left foot demarcation 32 and the right foot demarcation 34. The left foot demarcation 32 is rotated counter-clockwise from the swing axis so as to be at an angle thereto, and the right foot demarcation 34 is rotated clockwise from the swing axis so as to be at an angle thereto, whereby the feet of the user when placed within the foot position demarcations are  
25 comfortably oriented as the user swings the club.

Preferably, the setup demarcation 56 extends, as stated, from the ball position demarcations 40 so as to be substantially collinear with the ball position demarcations and to pass between the left foot demarcation 32 and the right foot demarcation 34 substantially adjacent to the

left foot demarcation 32, the setup demarcation being configured to enable the optimal path of light to track within the setup demarcation 56 at a setup position of a mechanically sound swing of the club by the user, the setup position being defined by the location of a distal end of the club adjacent to the ball position demarcations.

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Preferably, the ball demarcations 40 are defined by hash marks and the swing zone demarcation 50 defines a swath at least four inches wide.

10 In the above apparatus a method of practicing and analyzing the swinging of a swing object (golf club), comprises the steps of placing a universal swing practice mat, as described above on a ground surface, standing on the mat within foot position demarcations provided thereon, swinging the swing object over the mat, and analyzing the positioning of the swing object by observing a light projection from the swing object within swing zone demarcations provided on the mat. Further, the steps of holding the swing object in a setup position over  
15 the mat such that a distal end of the swing object is substantially adjacent to ball position demarcations provided on the mat opposite the foot position demarcations; and analyzing the positioning of the swing object in the setup position by observing the light projection from the swing object within a setup demarcation provided on the mat are preferred steps as well.

20 The method may include shifting the swing object spatially up and away from the setup position as in a back swing to a low-swing position, analyzing the positioning of the swing object in the low-swing position by observing the light projection within a low-swing demarcation provided on the mat, shifting the swing object beyond the low-swing position to a mid-swing position defined by the waist-high position of the swing object substantially  
25 parallel to the ground surface, analyzing the positioning of the swing object in the mid-swing position by observing the light projection within a mid-swing demarcation provided on the mat, shifting the swing object beyond the mid-swing position to a high-swing position, analyzing the positioning of the swing object in the high-swing position by observing the light projection within a high-swing demarcation provided on the mat, shifting the swing

object beyond the high-swing position to a top-swing position defined by the overhead position of the swing object substantially parallel to the ground surface; and analyzing the positioning of the swing object in the top-swing position by observing the light projection within a top-swing demarcation provided on the mat.

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The method may also include shifting the swing object to a mid-swing position defined by the waist-high position of the swing object substantially parallel to the ground surface, analyzing the positioning of the swing object in the mid-swing position by observing the light projection within a mid-swing demarcation provided on the mat, shifting the swing  
10 object beyond the mid-swing position to a high-swing position, analyzing the positioning of the swing object in the high-swing position by observing the light projection within a high-swing demarcation provided on the mat, shifting the swing object beyond the high-swing position to a top-swing position defined by the overhead position of the swing object substantially parallel to the ground surface; and analyzing the positioning of the swing object  
15 in the top-swing position by observing the light projection within a top-swing demarcation provided on the mat.

The method may further include the steps of shifting the swing object from the top-swing position back through each of the swing positions so as to perform a forward swing,  
20 analyzing the positioning of the swing object at each of the swing positions by observing the light projection from the swing object in each of the respective demarcations provided on the mat, shifting the swing object past the mid-swing position to a low-swing position, analyzing the positioning of the swing object in the low-swing position by observing the light projection within a low-swing demarcation provided on the mat, stopping the swing object  
25 in a contact position over the mat such that a distal end of the swing object is substantially adjacent to ball position demarcations provided on the mat opposite the foot position demarcations; and analyzing the positioning of the swing object in the contact position by observing the light projection from the swing object within a contact demarcation provided on the mat.

The words used in this specification to describe the invention and its various embodiments are to be understood not only in the sense of their commonly defined meanings, but to include by special definition in this specification: structure, material or acts beyond the scope of the commonly defined meanings. Thus if an element can be understood in the context of this specification as including more than one meaning, then its use must be understood as being generic to all possible meanings supported by the specification and by the word or words describing the element.

The definitions of the words or elements of this described invention and its various embodiments are, therefore, defined in this specification to include not only the combination of elements which are literally set forth, but all equivalent structure, material or acts for performing substantially the same function in substantially the same way to obtain substantially the same result. In this sense it is therefore contemplated that an equivalent substitution of two or more elements may be made for any one of the elements in the invention and its various embodiments below or that a single element may be substituted for two or more elements in a claim.

Changes from the claimed subject matter as viewed by a person with ordinary skill in the art, now known or later devised, are expressly contemplated as being equivalents within the scope of the invention and its various embodiments. Therefore, obvious substitutions now or later known to one with ordinary skill in the art are defined to be within the scope of the defined elements. The invention and its various embodiments are thus to be understood to include what is specifically illustrated and described above, what is conceptually equivalent, what can be obviously substituted, and also what essentially incorporates the essential idea of the invention.

While the invention has been described with reference to at least one preferred embodiment, it is to be clearly understood by those skilled in the art that the invention is not limited

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thereto. Rather, the scope of the invention is to be interpreted only in conjunction with the appended claims and it is made clear, here, that the inventor(s) believe that the claimed subject matter is the invention.